

IDAHO FRESH PAK (PWS 7260016) SOURCE WATER ASSESSMENT FINAL REPORT

December 4, 2001



State of Idaho Department of Environmental Quality

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Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment for Idaho Fresh Pak, Lewisville, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Idaho Fresh Pak drinking water system consists of two well sources. Both wells in the system have several microbial contaminant detections recorded and no recorded inorganic contaminants (IOC) that exceed maximum contaminant levels (MCL) and no synthetic organic contaminants (SOC) or volatile organic contaminants (VOC). Nevertheless, both wells in the system have high overall susceptibility ratings for the IOC, VOC, SOC and microbial categories due to the number of potential contaminants in the area combined with other factors. These factors include a moderate risk rating in hydrologic sensitivity, a high county-wide level of nitrogen fertilizer a high herbicide use, and a high total county level ag-chemical use. In addition, the delineation for Idaho Fresh Pak crosses an organics priority area for the synthetic organic pesticide atrazine.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For Idaho Fresh Pak, source water protection activities should focus on correcting deficiencies outlined in the 1997 sanitary surveys for Wells 1 and 2. These inspections are conducted every five years with the purpose of determining the physical condition of a water system’s components and its capacity. Additionally, there should be a focus on the implementation of practices aimed at reducing the potential for leaching of agricultural chemicals from agricultural land within the designated source water areas. Idaho Fresh Pak should have an awareness of the numerous potential contaminant sources in the area. Given that much of the designated protection areas are outside the direct control of the Idaho Fresh Pak, partnerships with state and local agencies, and industry groups should be established. These collaborative efforts are critical to the success of source water protection. All wells should maintain sanitary survey standards regarding wellhead protection.

Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil and Water Conservation District, and the Natural Resources Conservation Service. A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Idaho Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR IDAHO FRESH PAK, LEWISVILLE, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is attached.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The public drinking water system for Idaho Fresh Pak is comprised of two ground water wells that serve approximately 400 employees through three connections. The wells are located within 300 feet of one another, immediately north of Lewisville in Jefferson County (Figure 1).

There have been repeated detections of microbials and low levels of nitrate in water samples. There have been no detections of VOCs or SOCs. However, the delineation zones for both wells do cross a SOC priority area for the pesticide Atrazine. In addition, “County Level Nitrogen Fertilizer Use”, “Country Level Herbicide Use”, and “Total County Level Ag-Chemical Use” are high for this area.

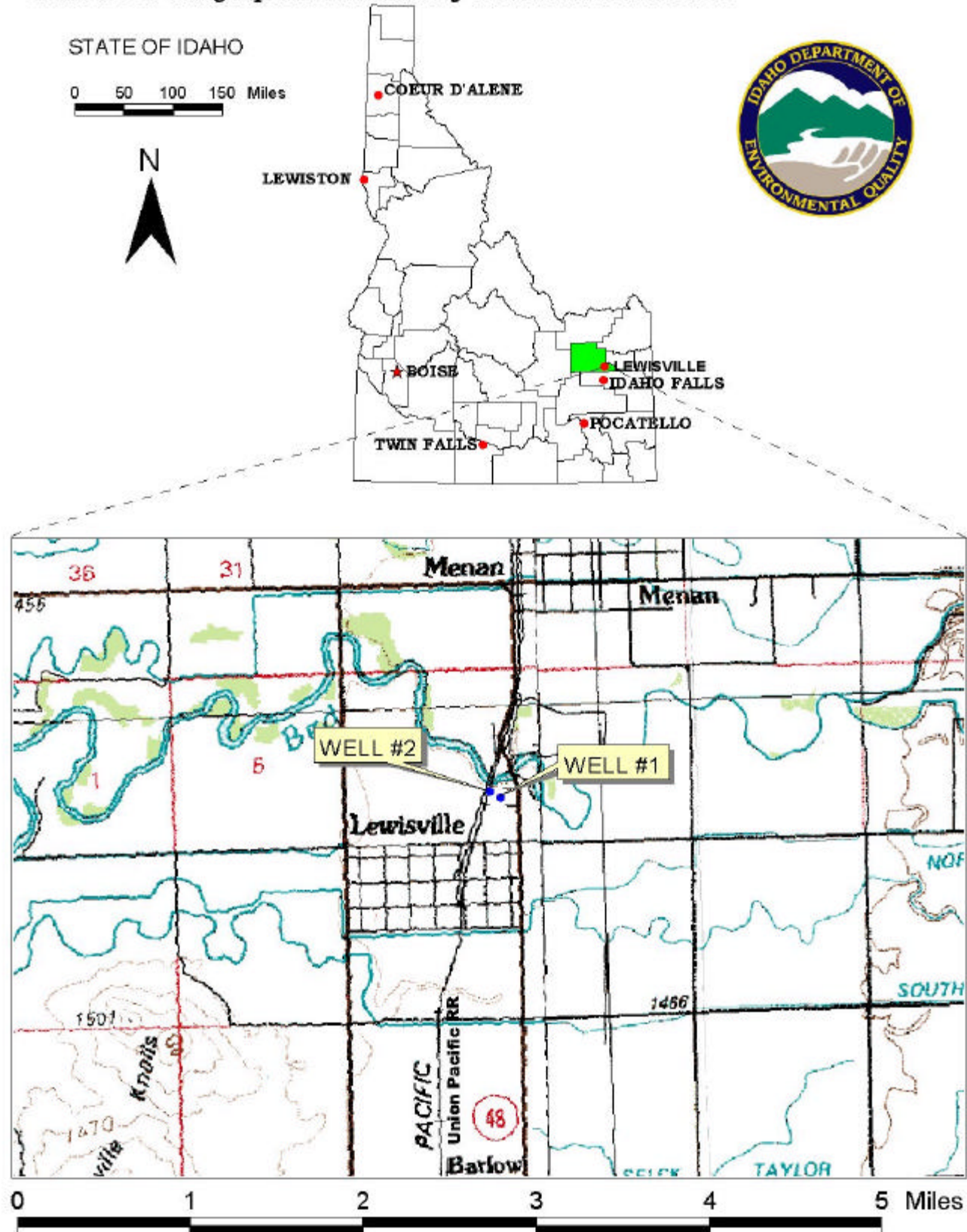
Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ contracted with Washington Group, International (WGI) to perform the delineations using a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and the upper Eastern Snake River Plain (ESRP) aquifer in the vicinity of the Idaho Fresh Pak Wells. The 10-year (Zone 3) TOT for water associated with this system is absent due to the presence of the Snake River (Figure 2). The computer model used site specific data, assimilated by WGI from a variety of sources including the Idaho Fresh Pak operator report, other local area well logs, and hydrogeologic reports (detailed below).

The ESRP is a northeast trending basin located in southeastern Idaho. Ten thousand square miles of the basin are primarily filled with highly fractured layered Quaternary basalt flows of the Snake River Group, which are intercalated with terrestrial and lacustrine sediments along the margins (Garabedian, 1992, p. 5). Individual basalt flows range from 10 to 50 feet in thickness and average 20 to 25 feet (Lindholm, 1996, p. 14). Basalt is thickest in the central part of the eastern plain and thins toward the margins. Whitehead (1992, p. 9) estimates the total thickness of the flows to be as great as 5,000 feet. A thin layer (0 to 100 feet) of windblown and fluvial sediments overlies the basalt.

The plain is bound on the northeast by rocks of the Yellowstone Group (mainly rhyolite) and Idavada Volcanics to the southwest. The Snake River flows along part of the southern boundary and is the only drainage that leaves the plain. Rivers and streams entering the plain from the south are tributary to the Snake River. Other than the Big and Little Wood rivers, rivers entering from the north vanish into the highly transmissive basalts of the Snake River Plain aquifer.

FIGURE 1. Geographic Location of Idaho Fresh Pak P11



The layered basalts of the Snake River Group host one of the most productive aquifers in the United States. The aquifer is generally considered unconfined, yet it may be locally confined in some areas because of inter-bedded clay and dense unfractured basalt (Whitehead, 1992, p. 26). Whitehead (1992, p. 22) reports that well yields of 2,000 to 3,000 gal/min are common for wells open to less than 100 feet of the aquifer. Lindholm (1996, p. 18) estimates aquifer thickness to range from several hundred feet near the plain's margin to thousands of feet near the center.

The majority of aquifer recharge results from surface water irrigation activities (incidental recharge), which divert water from the Snake River and its tributaries (Ackerman, 1995, p. 4, and Garabedian, 1992, p. 11). Natural recharge occurs through stream losses, direct precipitation, and tributary basin underflow.

Regional ground water flow is to the southwest paralleling the basin (Cosgrove et al., 1999, p. 21; deSonneville, 1972, p. 78; Garabedian, 1992, p. 48; and Lindholm, 1996, p. 23). Ground water flow direction at the local scale is thought to be highly variable due to preferential flow paths through the fractured and layered basalts.

The delineated source water assessment area for the Idaho Fresh Pak wells can best be described as two overlapping cone-shaped corridors extending to the northeast of Idaho Fresh Pak and ending at the Snake River. The delineation zone is approximately six miles long and up to 3 miles wide at its northeast boundary along the Snake River. The delineation zones only include the 3-year and 6-year TOT and not 10-year TOTs because the Snake River is assessed to be the main source of the wells' water beyond the 6-year TOT (Figures 2 & 3). The actual data used by WGI in determining the source water assessment delineation areas are available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of groundwater contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the immediate area of the Idaho Fresh Pak wellheads consists of the company's potato processing plant, while the surrounding area is predominantly irrigated agriculture (Tables 1 & 2, Figures 2 & 3).

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and

inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted during the summer of 2001. The first phase involved identifying and documenting potential contaminant sources within the Idaho Fresh Pak Source Water Assessment Area through the use of computer databases and Geographic Information System maps developed by DEQ (Tables 1 & 2, Figures 2 & 3). The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the area.

Table 1. Idaho Fresh Pak Well 1, Potential Contaminant Inventory

| SITE # | Source Description | TOT Zone ¹ (years) | Source of Information | Potential Contaminants ² |
|--------|----------------------|----------------------------------|-----------------------|-------------------------------------|
| 1 | Dairy | 3 | Database Research | IOC, SOC, M |
| 2 | Dairy | 3 | Database Research | IOC, SOC, M |
| 3 | Livestock Breeders | 3 | Database Research | VOC, SOC, M |
| 4 | General Contractor | 3 | Database Research | IOC, VOC, SOC |
| 5 | General Contractor | 3 | Database Research | IOC, VOC, SOC |
| 6 | SARA Site | 3 | Database Research | IOC, SOC, M |
| 7 | Potato Processor | 3 | Database Research | IOC |
| 8 | Municipal Wastewater | 3 | Database Research | IOC, M |
| 9 | Snake River | 3 | Database Research | IOC, VOC, SOC, M |

¹ TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

² IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical, M = Microbials

Table 2. Idaho Fresh Pak Well 2, Potential Contaminant Inventory

| SITE # | Source Description | TOT Zone ¹ (years) | Source of Information | Potential Contaminants ² |
|--------|----------------------|----------------------------------|-----------------------|-------------------------------------|
| 1 | Dairy | 3 | Database Research | IOC, SOC, M |
| 2 | Dairy | 3 | Database Research | IOC, SOC, M |
| 3 | Livestock Breeders | 3 | Database Research | VOC, SOC, M |
| 4 | General Contractor | 3 | Database Research | IOC, VOC, SOC |
| 5 | General Contractor | 3 | Database Research | IOC, VOC, SOC |
| 6 | SARA Site | 3 | Database Research | IOC, SOC, M |
| | Fuel Oil Distributor | 3 | Database Research | IOC, VOC, SOC |
| 7 | Potato Processor | 3 | Database Research | IOC |
| 8 | Municipal Wastewater | 3 | Database Research | IOC, M |
| 9 | Snake River | 3 | Database Research | IOC, VOC, SOC, M |

¹ TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

² IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical, M = Microbials

Figure 2. Idaho Fresh Pak P11 Delineation Map and Potential Contaminant Source Locations

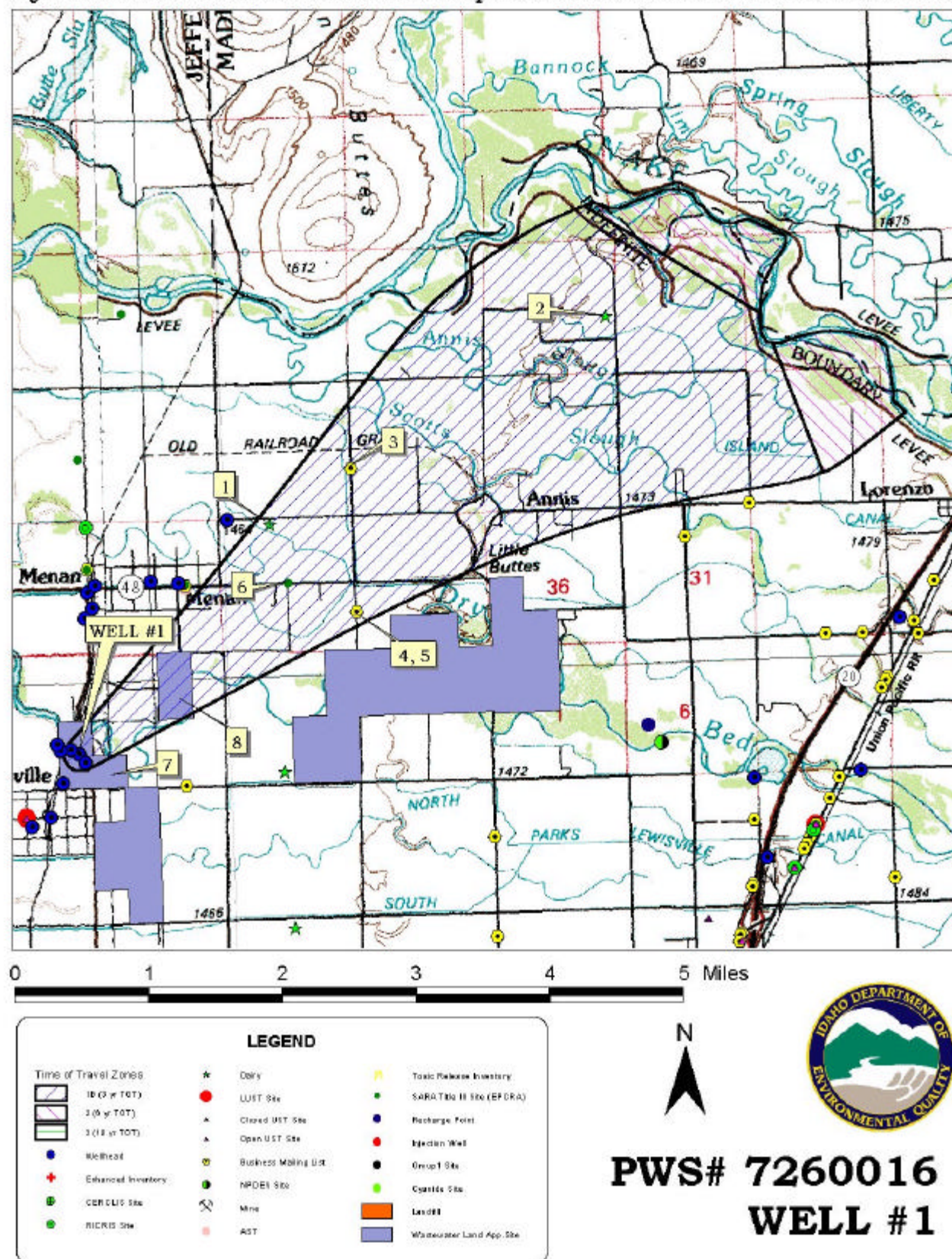
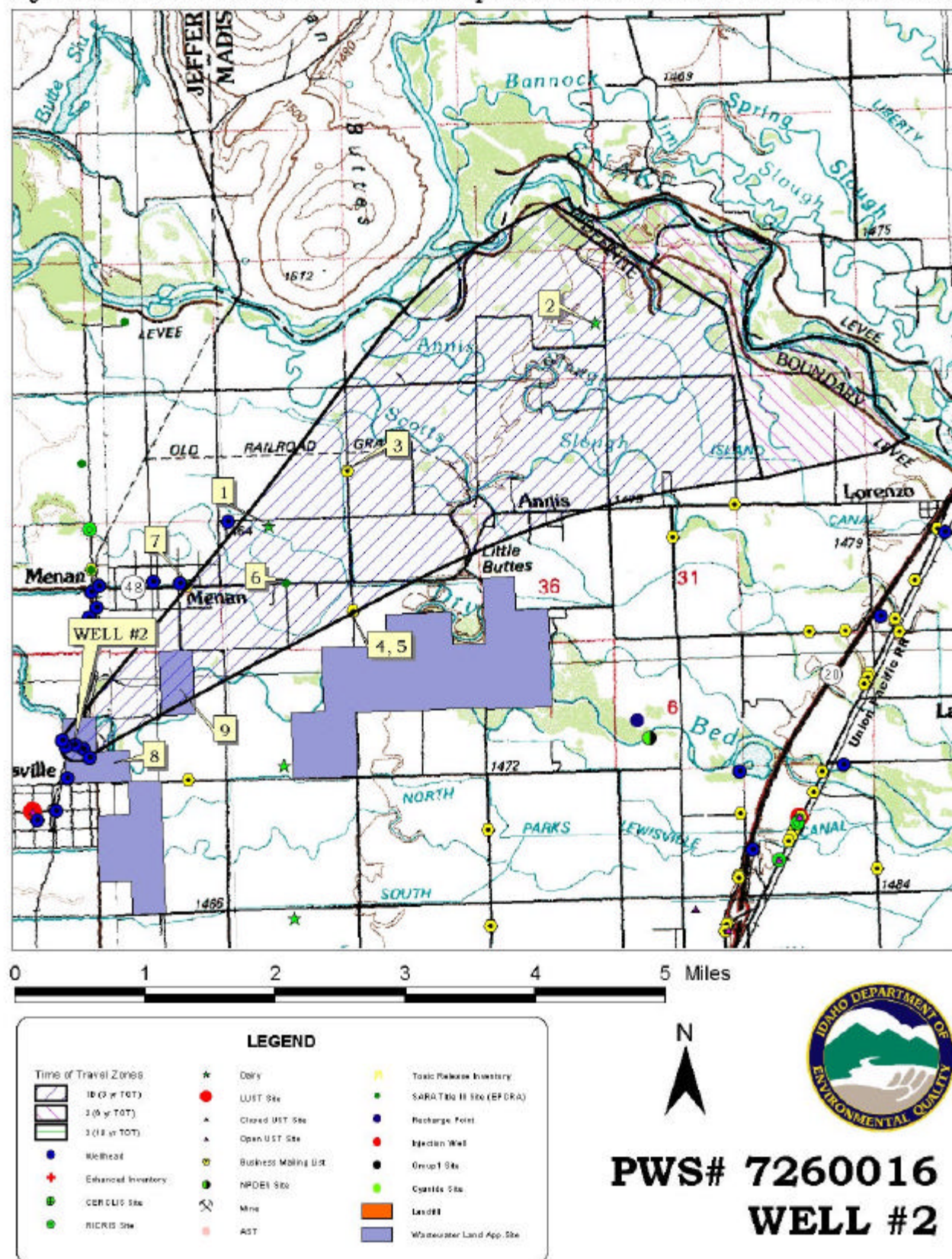


Figure 3. Idaho Fresh Pak P11 Delineation Map and Potential Contaminant Source Locations



Section 3. Susceptibility Analyses

The water system's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Hydrologic sensitivity ranks moderate risk for both wells at Idaho Fresh Pak (left side of Table 3). This is a result of the soils being in the poor to moderately well drained class and the fact that the water table is less than 300 feet from the surface. Although there are no drill hole logs available for this study, well logs from other close-by wells suggest that there is a lack of laterally extensive low-permeability units in the area to retard the downward movement of contaminants.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in Sanitary Surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

Both Idaho Fresh Pak wells have a high-risk system construction score. This high-risk scoring is based largely on the lack of drill hole logs with accompanying information. Without contrary information the assumption is made that both wells do not meet current IDWR construction standards, well casing does not extend into low permeability geologic units and the production levels for both wells is less than 100 feet below static water level.

Though the wells may have been in compliance with standards when they were completed in the 1960's, current PWS well construction standards are more stringent than they were at that time. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells.

Potential Contaminant Source and Land Use

Regarding land use, the number of potential contaminants in both wells' delineation zones resulted in a high-risk rating for IOCs (i.e. nitrates), SOC's (i.e. pesticides) and for VOCs (i.e. petroleum products) and for microbial contaminants (i.e. coliform bacteria). Agricultural land uses in the delineated source areas also contributed to these ratings.

Wells 1 and 2 fall within the SOC priority area for the pesticide atrazine and are also in a county with high levels of nitrogen fertilizer use, high herbicide use, and high total ag-chemical use.

Final Susceptibility Ranking

A detection above a drinking water standard MCL or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and agricultural land contribute greatly to the overall ranking. In terms of total (final) susceptibility, both wells rate high-risk for all categories.

Table 3. Summary of Idaho Fresh Pak Susceptibility Evaluation for Well 1 & Well 2

| Table 3: Summary of Future Fresh Water Susceptibility Evaluation for Well 1 & Well 2 | | | | | | | | | | |
|--|------------------------------------|-----------------------|-----|-----|------------|---------------------|------------------------------|-----|-----|------------|
| Well | Susceptibility Scores ¹ | | | | | | | | | |
| | Hydrologic Sensitivity | Contaminant Inventory | | | | System Construction | Final Susceptibility Ranking | | | |
| | | IOC | VOC | SOC | Microbials | | IOC | VOC | SOC | Microbials |
| Well #1 | H | H | H | H | H | H | H | H | H | H* |
| Well #2 | H | H | H | H | H | H | H | H | H | H* |

¹H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility, H* Both wells automatically score high risk for microbial contamination due to historic detections of this parameter, IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

Overall, both Idaho Fresh Pak wells rate high risk for all categories. Both wells in the system have several microbial contaminant detections recorded, and no IOC that exceed maximum contaminant levels. Neither well has any recorded SOC or VOC detections. Nevertheless, both wells in the system have high overall susceptibility ratings for the IOC, VOC, SOC and microbials categories due to the number of potential contaminants in the area combined with a moderate risk rating in hydrologic sensitivity, a high county-wide level of nitrogen fertilizer a high herbicide use, and a high total county level ag-chemical use. In addition, the delineation for Idaho Fresh Pak crosses an organics priority area for the synthetic organic pesticide atrazine.

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For Idaho Fresh Pak, source water protection activities should focus on correcting deficiencies outlined in the 1997 Sanitary Survey for this facility. Additionally, there should be a focus on the implementation of practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water areas and awareness of the potential contaminant sources in the area. Microbial contamination of drinking water is a serious threat to human health, therefore, potential sources for microbial contamination should be found and eliminated. Given that much of the designated protection areas are outside the property boundary of the Idaho Fresh Pak, partnerships with state and local agencies, and industry groups should be established. These collaborative efforts are critical to the success of source water protection. The wells should be maintained to sanitary survey standards regarding wellhead protection. Continued vigilance in keeping the wells protected from surface flooding can also keep the potential for contamination reduced. Due to the time involved with the movement of ground water, wellhead protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the short term. Source water protection activities for agriculture should be coordinated with the Idaho Department of Agriculture, the Soil Conservation Commission, the local Soil and Water Conservation District, and the Natural Resources Conservation Service.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Idaho Falls Regional DEQ Office (208) 528-2650

State DEQ Office (208) 373-0502

Website: <http://www2.state.id.us/deq>

Water suppliers serving fewer than 10,000 persons may contact John Bokor, Idaho Rural Water Association, at 1-800-962-3257 for assistance with wellhead protection strategies.

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

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Attachment A

Idaho Fresh Pak
Susceptibility Analysis
Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.273)
- 2) 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

1. System Construction

SCORE

| | | |
|---|--------|------|
| Drill Date | 1/1/60 | |
| Driller Log Available | NO | |
| Sanitary Survey (if yes, indicate date of last survey) | YES | 1997 |
| Well meets IDWR construction standards | NO | 1 |
| Wellhead and surface seal maintained | YES | 0 |
| Casing and annular seal extend to low permeability unit | NO | 2 |
| Highest production 100 feet below static water level | NO | 1 |
| Well located outside the 100 year flood plain | NO | 1 |
| Total System Construction Score | | 5 |

2. Hydrologic Sensitivity

| | | |
|---|-----|---|
| Soils are poorly to moderately drained | YES | 0 |
| Vadose zone composed of gravel, fractured rock or unknown | YES | 1 |
| Depth to first water > 300 feet | NO | 1 |
| Aquitard present with > 50 feet cumulative thickness | NO | 2 |
| Total Hydrologic Score | | 4 |

3. Potential Contaminant / Land Use - ZONE 1A

IOC Score VOC Score SOC Score Microbial Score

| | | | | | |
|---|--------------------|----|----|----|-----|
| Land Use Zone 1A | IRRIGATED CROPLAND | 2 | 2 | 2 | 2 |
| Farm chemical use high | YES | 2 | 0 | 2 | |
| IOC, VOC, SOC, or Microbial sources in Zone 1A | YES | NO | NO | NO | YES |
| Total Potential Contaminant Source/Land Use Score - Zone 1A | | 4 | 2 | 4 | 2 |

Potential Contaminant / Land Use - ZONE 1B

| | | | | | |
|---|--|----|----|----|----|
| Contaminant sources present (Number of Sources) | YES | 9 | 4 | 4 | 5 |
| (Score = # Sources X 2) 8 Points Maximum | | 8 | 8 | 8 | 8 |
| Sources of Class II or III leacheable contaminants or | YES | 0 | 2 | 0 | |
| 4 Points Maximum | | 0 | 2 | 0 | |
| Zone 1B contains or intercepts a Group 1 Area | YES | 0 | 0 | 2 | 0 |
| Land use Zone 1B | Greater Than 50% Irrigated Agricultural Land | 4 | 4 | 4 | 4 |
| Total Potential Contaminant Source / Land Use Score - Zone 1B | | 12 | 14 | 14 | 12 |

Potential Contaminant / Land Use - ZONE II

| | | | | | |
|---|---------------------------------------|---|---|---|---|
| Contaminant Sources Present | YES | 2 | 2 | 2 | |
| Sources of Class II or III leacheable contaminants or | YES | 1 | 1 | 1 | |
| Land Use Zone II | 25 to 50% Irrigated Agricultural Land | 1 | 1 | 1 | |
| Potential Contaminant Source / Land Use Score - Zone II | | 4 | 4 | 4 | 0 |

Potential Contaminant / Land Use - ZONE III

| | | | | | |
|--|----|----|----|----|----|
| Contaminant Source Present | NO | 0 | 0 | 0 | |
| Sources of Class II or III leacheable contaminants or | NO | 0 | 0 | 0 | |
| Is there irrigated agricultural lands that occupy > 50% of | NO | 0 | 0 | 0 | |
| Total Potential Contaminant Source / Land Use Score - Zone III | | 0 | 0 | 0 | 0 |
| Cumulative Potential Contaminant / Land Use Score | | 20 | 20 | 22 | 14 |

4. Final Susceptibility Source Score

13 13 13 14

5. Final Well Ranking

High High High High

Ground Water Susceptibility Report
IDAHO FRESH PAK WELL #2 Public Water System Number 7260016 11/20/01 2:44:18 PM
SCORE

1. System Construction

| | | |
|---|--------|------|
| Drill Date | 1/1/65 | |
| Driller Log Available | NO | |
| Sanitary Survey (if yes, indicate date of last survey) | YES | 1997 |
| Well meets IDWR construction standards | NO | 1 |
| Wellhead and surface seal maintained | YES | 0 |
| Casing and annular seal extend to low permeability unit | NO | 2 |
| Highest production 100 feet below static water level | NO | 1 |
| Well located outside the 100 year flood plain | NO | 1 |
| Total System Construction Score | | 5 |

2. Hydrologic Sensitivity

| | | |
|---|-----|---|
| Soils are poorly to moderately drained | YES | 0 |
| Vadose zone composed of gravel, fractured rock or unknown | YES | 1 |
| Depth to first water > 300 feet | NO | 1 |
| Aquitard present with > 50 feet cumulative thickness | NO | 2 |
| Total Hydrologic Score | | 4 |

3. Potential Contaminant / Land Use - ZONE 1A

| 3. Potential Contaminant / Land Use - ZONE 1A | | IOC Score | VOC Score | SOC Score | Microbial Score |
|---|--------------------|-----------|-----------|-----------|-----------------|
| Land Use Zone 1A | IRRIGATED CROPLAND | 2 | 2 | 2 | 2 |
| Farm chemical use high | YES | 2 | 0 | 2 | |
| IOC, VOC, SOC, or Microbial sources in Zone 1A | YES | NO | NO | NO | YES |
| Total Potential Contaminant Source/Land Use Score - Zone 1A | | 4 | 2 | 4 | 2 |

Potential Contaminant / Land Use - ZONE 1B

| | | | | | |
|---|--|----|----|----|----|
| Contaminant sources present (Number of Sources) | YES | 10 | 5 | 5 | 6 |
| (Score = # Sources X 2) 8 Points Maximum | | 8 | 8 | 8 | 8 |
| Sources of Class II or III leacheable contaminants or | YES | 0 | 3 | 0 | |
| 4 Points Maximum | | 0 | 3 | 0 | |
| Zone 1B contains or intercepts a Group 1 Area | YES | 2 | 0 | 2 | 0 |
| Land use Zone 1B | Greater Than 50% Irrigated Agricultural Land | 4 | 4 | 4 | 4 |
| Total Potential Contaminant Source / Land Use Score - Zone 1B | | 14 | 15 | 14 | 12 |

Potential Contaminant / Land Use - ZONE II

| | | | | | |
|---|---------------------------------------|---|---|---|---|
| Contaminant Sources Present | YES | 2 | 2 | 2 | |
| Sources of Class II or III leacheable contaminants or | YES | 0 | 1 | 0 | |
| Land Use Zone II | 25 to 50% Irrigated Agricultural Land | 1 | 1 | 1 | |
| Potential Contaminant Source / Land Use Score - Zone II | | 3 | 4 | 3 | 0 |

Potential Contaminant / Land Use - ZONE III

| | | | | | |
|--|----|---|---|---|---|
| Contaminant Source Present | NO | 0 | 0 | 0 | |
| Sources of Class II or III leacheable contaminants or | NO | 0 | 0 | 0 | |
| Is there irrigated agricultural lands that occupy > 50% of | NO | 0 | 0 | 0 | |
| Total Potential Contaminant Source / Land Use Score - Zone III | | 0 | 0 | 0 | 0 |

Cumulative Potential Contaminant / Land Use Score

21 21 21 14

4. Final Susceptibility Source Score

13 13 13 14

5. Final Well Ranking

High High High High